

THANKS FOR PURCHASING OUR PRODUCT

MIG 205

Inverter MIG/MAG/MMA Semi-auto ARC Welding Machine

(with preset voltage, wire speed)

Operation Manual

(Read the manual carefully before installation, operation and maintenance)

Advanced Product

Prolegomenon

We do very appreciated for your selecting our products.

This kind of welding power Model MIG205 is taken foreign advanced technology to develop and manufacture the new generation inverter integrated controlling Semi-auto MIG/MAG ARC Welding machine.

It can be composed the MIG205 MIG/MAG/MMA ARC Welding system equipped with wire feeder and welding gun .It has many characteristic such as easy Arc starting ,good Arc springiness ,adjustable arc thrusting ,low splash,good welding form ,easy welding operation, wide range and electricity save.

The MIG/MAG semi-auto Arc welding machine model MIG205 is advanced welding machine and it can be compared with foreign products.

This operation manual can help you for the machine installation, operation and maintenance correctly and safely.Pay attention to the points as following.

- . Installation of the power cord. Be grounded correctly.
- . Don't put sundries under the welder.Otherwise it will affect the heat released.
- . Installation for the positive and negative cable of the power output.
- . Welding voltage selection
- . Welding current selection (speed of wire feeder)
- . Selection of Arc thrusting(arc force)

The amendment right and the explanation right of the manual belonging to my company.
We have no special notice if the manual is amended.

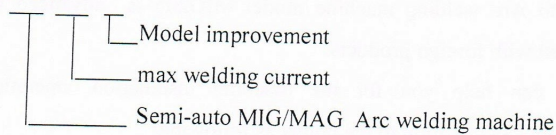
1. Main characteristic and suitable range

This kind of welding power Model MIG205 is taken foreign advanced technology to develop and manufacture the new generation inverter integrated controlling Semi-auto MIG/MAG Arc welding machine. It makes use of the import key parts such as Siemens IGBT module of Germany, alloy magnetic core and the resume diode module of America. It has the perfect performance of high quality, good reliability, quick speed of welding current, steady welding process, low splash and good welding form. Anyway, it becomes the welding very easy.

1.1 Structure of the MIG205 MIG/MAG/MMA semi-auto Arc welding machine

a. The name of the model

MIG 205



b. Composing of the product

This product is composed by three parts as following

- ★ Power source(MIG205)
- ★ welding gun

1.2 Suitable range of the MIG205

- ★ Suitable material: low-carbon steel, stainless steel
- ★ Thickness of the material: low-carbon steel and stainless: more than 0.5mm
- ★ Suitable position: all positions
- ★ Suitable wire: ϕ 0.6, 0.8, solid wire/flux cord wire.

1.3 Characteristic of MIG205

- ★ Wide output current 40-200A: 0.8 -----40-150A
1.0-----50-200A
- ★ Steady welding process, low splash, easy control, good welding form.
- ★ High efficiency: 200A/24V the duty cycle is 35%
155A/21.8V the duty cycle is 60%
120A/20V the duty cycle is 100%
continuous wire feed, the max speed of wire feed is 12m/min
- ★ Low starting of wire feed
- ★ Preset the welding voltage: Preset the welding current to read the welding criterion easy.

- ★ Adjusting the arc thrusting: Control the splash and steady arc.
- ★ Strong resistance for the fluctuate of the electricity

2. Main technical Data :

★ Input Voltage	1~220V/230V/240V ; 50/60Hz
★ Rated Input current	34 A
★ Rated Input power	7.5KVA
★ No-load Voltage	55~75V
★ Voltage adjusting Range	14 ± 3V~26 ± 3V
★ Current output Range	40~200A(MIG/MAG) 40~160A(MMA)
★ Suitable wire	0.8 , 1.0
★ Duty cycle	200A/24V the duty cycle is 35% 155A/21.8V the duty cycle is 60% 120A/20V the duty cycle is 100%
★ Efficiency	$\eta \geq 0.85$
★ Power factor	$\lambda = 0.8$
★ Insulation class	F
★ Protection class of shell	fan cooling

Note:(1) Adjust the no-load voltage according to the requirements. Normally it is 60V.

3. Function

3.1 Adjusting function for the welding voltage and welding current

3.1.1 MIG205 supply the adjusting range at MIG/MAG as following,

Welding voltage : 14V ± 3V~26V ± 3V use the voltage adjusting knob

Welding current : 40A~200A use the current adjusting knob

3.1.2 MIG205 supply the adjusting range at MMA as following,

Welding current : 40A~160A use the welding current knob on the panel.

3.2 Adjusting function of the Arc thrusting

It has the important function to select the proper Arc thrusting for improvement of the welding line ,control the welding splash and the steady Arc. Normally,.

If the thrusting is low ,the arc is soft and splash .

If the thrusting is high, the arc is strong and high splash.

Use the arc thrusting continuously by the control knob on the front panel of MIG205.

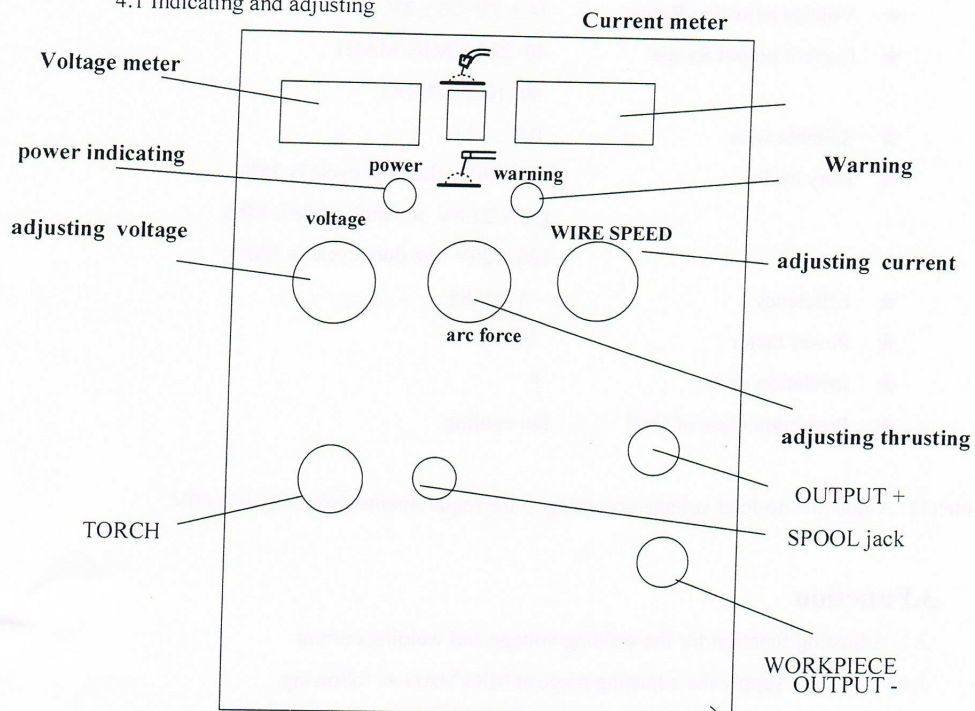
3.3 Recycle function

We design the function to settle two problems.

- 1) Control the diameter of the wire ball at the end of wire .
- 2) Prevent the wire into the pool after the Arc stopping.

4. Indicating and warning on the MIG205 control panel

4.1 Indicating and adjusting



4.1.1 Voltage indicating

The voltage meter on the front panel can indicate the actual welding voltage or preset voltage. The indicating number has the precision of 0.1V. The meter indicates the preset during no welding.

4.1.2 Current indicating

The current indicating meter on the front panel indicates the actual welding current during

the welding. The adjusting range is $-70 \pm 10 \sim -330 \pm 20$. The max preset scale can be $-135 \sim -300$ in special requirements.

4.1.3 Power indicating

If the indicating light is on the control circuit connects the power already.

4.1.4 Switch for gas inspection

Before welding, if switch is "ON", you can adjust the gas flow.

During welding, switch is "OFF", otherwise the flow directly.

4.2 Warning

In order to remind the operator, we design the warnings as following.

★ excess temp

In the condition of more than 40°C temperature, large current is used continuously ($12 > 135\text{A}$), efficiency radiator temperature is more than $80 \pm 5^\circ\text{C}$, overheat circuit begins working. The indicating light is on, the power stop the welding automatically. The fan running continuously. If the temperature is lower, the indicating is off, the power can work and weld can be continued automatically. Remind: Don't turn off the machine while the indicating overheat light is ON.

★ warning

If the circuit is over current, the light is ON. The control circuit stop the power automatically.

5. Safe and installation caution

Read the safe caution before installation and operation. It come down to the high voltage electricity, electric Arc and high temperature splash. So keep the safe regulation, operate the machine properly, avoid the danger of electricity and high temperature arc.

- ★ Check if any damage or out looking of the welder.
- ★ Confirm the capacity: more than 30A.
- ★ Power source is grounded, diagram 6
- ★ Prohibit the combustible goods in the welding locale.
- ★ There is fire proof measure in the welding locale with favorable ventilated condition.
- ★ There is smoke discharge system if the welding is operated inside the house in order to keep the safety of workers.
- ★ The welding operator must be professional workers.
- ★ The operator must be fitted with safe accessories. Such as safe shoes, gloves, cover, welding mask and welding dress etc.

6. Explanation of installation

6.1 MIG/MAG welding

put the switch MIG/MMA SWITCH into 

★ Check the products according to the packing list when open the package.

★ Grounded protection. Attached the diagram 6

The power source is 220Vac/(50~60Hz) .The yellow/green double cable is grounding cable.Be sure to connect the yellow/green double cable into the grounding connection in the welding locale .Another way is selecting the M8 bolt on the back on the machine and connect the grounding as the diagram as following.

★ Install the welding gun on the front panel and screw the welding gun ,then lock the bolt.

★ Connect the gas pipe with the gas bottle according to the locale conditions. Check the air proof conditions to ensure the good airproof.

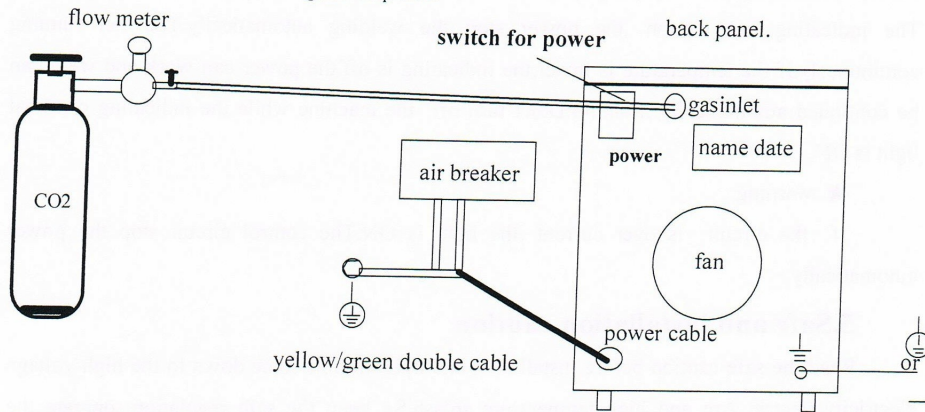


diagram 6

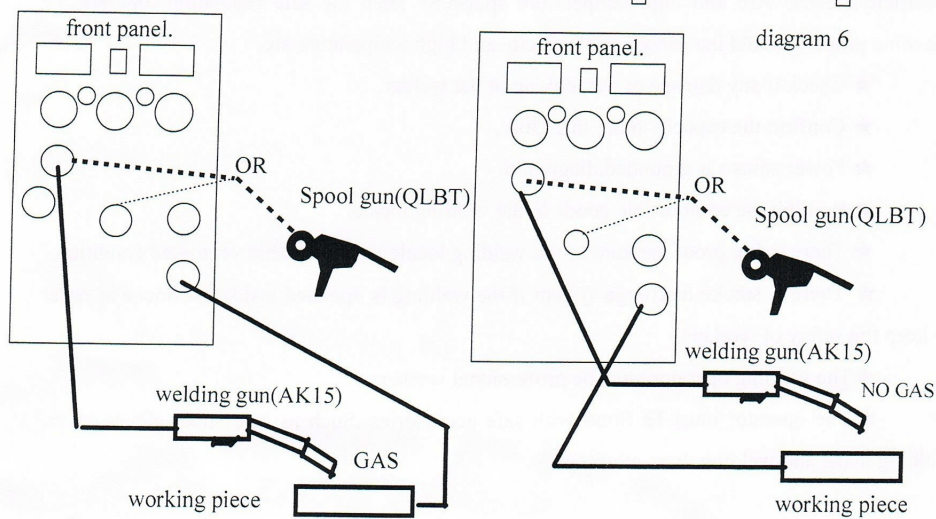

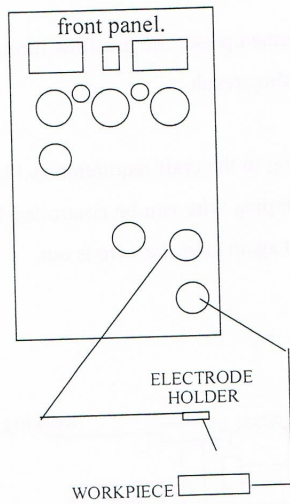


diagram 7

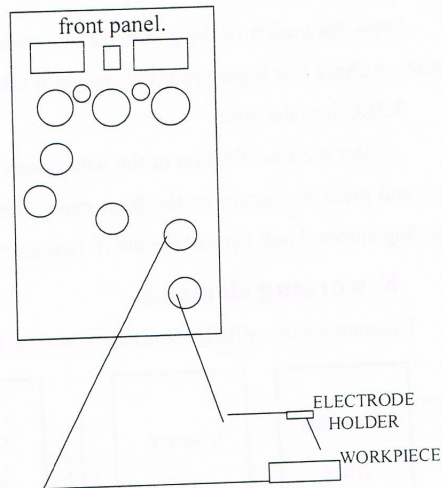
6.1 MIG/MAG welding

put the switch MIG/MMA SWITCH into 
Selecting empiric formula: $I=40*d$, d is dia. of the electrode.
Notice positive and negative connection during welding.

A negative connection



B positive connection



7. Operatings

- ★ "ON" and "OFF" indicating switch on the back panel.
- ★ Preset the welding voltage ,welding current(wire speed).and Arc force.Diagram 4
- ★ Confirm the specification of the wire feed hose
- ★ Confirm the specification of nib base .It affects the extended length of the wire .
- ★ Confirm the specification of nib. It affects the electric resistance.
- ★ Confirm the wire slot of the roller is suitable for the diameter of the wire. Different diameter of wire select different wire slot. Otherwise it affects the wire feed result.
- ★ Confirm the pressure of the roller to avoid slipping.
If the pressure is not enough ,the wire feed is slow speed.
If the pressure is too much ,the wire will be anamorphic.
The wire feeder can not work properly.
- ★ Confirm the flow of the gas and air proof.
We suggest the gas flow to be "L" more than $10D$ (D -diameter of wire).If the selection is not proper,it also affects the welding quality.When using the CO_2 gas,please confirm if the heating power works properly or not .

★Straight the hose of welding gun as much as possible .The bending radius can not be less than 200mm.Otherwise it affects the wire feeder.

7.1 working process

press the switch of the gun ,the normal welding begins.Relax the switch,the arc stops.

7.2 Gas inspection

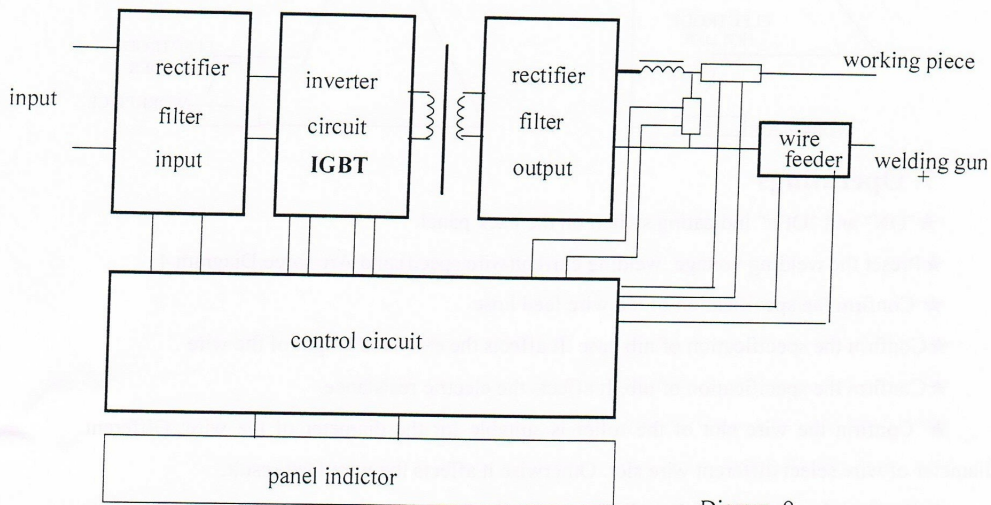
Press the switch of the gun before the wire roller is firmed,preset the gas flow through the meter to check if it is gas proof.Otherwise ,it affects the welding result.

7.3Rip into the wire

Select the specification of the wire ,materials according to the craft requirements.Firm the bolt and press the button on the front panel.The speed of ripping wire can be controlled by the welding current knob.Unload the nib if necessary and load it again after the wire is out.

8. working elements

Diagram for the MIG205 working elements.Digram9



Digram 9

Input AC 220V/230V/240V,rectifier and filter it into 300VDC.

Control the IGBT by PWM+PFM,inverter the 300VDC to 20KHZ AC.

High frequency transformer pass the power by insulation and voltage reducing with high efficiency.

Output the second rectifier and the second filter.Output the required welding current and voltage.

9. Maintenance

Check the safety measure be efficiency.

Get rid of the dust for the power source (FORexample, dry compressed air)

Before operating,, Check the "workpiece" "torch" connectors of the power panel if they are relaxed

.Check the connection between the grounding cable and plug if they are relaxed,(If relaxed, the serious heating will damage the quick connectors)

.Check the fan if it works regularly.charge it if it is trouble.

Check the insulation and breakage of the input power cord

.Change it in time to ensure the safety.

check if there is any noisy for the wire feed motor.

Check the abrasion of the wire feed hose.Get rid of the dust inside of the hose.(!~2times / 40kg wire)

.Get rid of the splash inside the nib regularly to ensure the guaranteed result by the gas blow.

Check the abrasion of the nib.Change it in time.(suggest 5~10pieces nibs/40kg wire).

10. Troubles and Remedy

Troubles and remedy and remedy are as the form 10 as following

Troubles	Cause	Remedy
1.Fan not works properly	1.the fan line lose 2.Fan breakage	1.Connect the line 2.Change the fan
2.No indicating on the front panel	1.the power line lose 2.Indicating light broken 3.the fuse or IGBT broken	1.Check the power,Connect the line 2.Change it(ϕ 8) 3.Change the fuse 30A/250V or Contact with the namufacturer .
3.Over heating light on(warning led lights red or yellow color)	1.aeration is not good 2.The temperature is too high 3.over-load use 4.Thermostat broken 5.Control plate broken	1.get rid of the bar 0.5m around 2.Reduce the temperature 3.Reduce the use loading 4.Change the thermostat(JUC-OF) 5.Check and change the

